

# Catalyst 3000

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This chapter provides information on the Catalyst 3000 system. The information is organized into the following sections:

- Product Overview
- Standard Features
- Expansion Modules
- Product Numbers

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**Note** Documentation for the Catalyst 3000 system is available in two forms: on a CD-ROM called Cisco Connection Documentation, Enterprise Series (formerly called UniverCD) and printed books. You can request a free copy of the documentation CD when you place an order and have the option of subscribing to a CD update service. A user guide ships with each system.

You can also access Cisco technical documentation on the World Wide Web URL <http://www.cisco.com>. For more information, see the chapter “Documentation” at the end of this catalog.

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## Product Overview

Cisco announces the first stackable switching architecture that delivers Layer 2, stackable software and VLAN switching for growing workgroup applications. The Catalyst 3000 allows you to deploy switches in a variety of applications and protect your investment. Greater switching capacity or multilayer traffic management functions can be added through a unique, cost-effective, stackable architecture.

Two key elements make up the Catalyst 3000 system:

- Catalyst 3000 16-port switch—a stackable switch with sixteen 10BaseT Ethernet ports, one AUI port, and two slots for expansion modules. The expansion modules can include mixtures of 1-port 100BaseTX, 3-port 10BaseFL, 1-port 100BaseFX, 4-port 10BaseT, and 1-port ATM modules. At the rear, a console port supports operator input, a monitoring port provides mirroring of port data to an external port, and an I/O stack port enables connection to the stack.

- Catalyst Matrix—An 8-port crosspoint matrix switch used to connect from three to eight 16-port switches to create a single-stack entity. When the 16-port switches are connected using the Matrix, the stack supports up to 192 switched Ethernet ports or 128 switched Ethernet ports with 16 slots for connectivity to 100-Mbps Ethernet. The Matrix provides the option for a fully redundant module, which includes both logic and a power supply providing truly fault tolerant switching.

The Catalyst 3000 offers the following features:

- Cisco IOS software for workgroup stack delivers “plug-and-play” manageable stack architecture
- An integrated VLAN architecture that leverages Fast Ethernet and ATM technologies to extend switched VLANs throughout the enterprise

The Catalyst 3000 system delivers media-rate switching. Its internal switching module interfaces allow users to add optional 100BaseT, 100 VG-AnyLAN (available Q4 1996), or ATM interfaces that connect to high speed servers, switched 100-Mbps LANs or ATM networks. Additional switching module interfaces support Ethernet connections as well as connections to multilayer routers or RMON probes, providing extensive traffic management and Layer 3 functions.

The Catalyst 3000 workgroup stack software architecture (Cisco IOS software for workgroup stack) delivers easy-to-use and manage stacked switching. Catalyst 3000 switches can be interconnected via a switching matrix so that multiple Catalysts can switch networks ranging from 16 to over 192 Ethernet segments. The stacking software is a distributed architecture that provides network resilience and supports automatic switch reconfiguration in addition to offering additional features to monitor and control switched network traffic.

Figure 113 shows the Catalyst 3000 switch with two optional expansion modules installed; Figure 114 shows the rear panel of the Catalyst 3000 switch, Figure 115 shows the front panel of Catalyst Matrix, and Figure 116 shows the rear panel of the Catalyst Matrix. Figure 117 shows a Catalyst stack from the front, and Figure 118 shows a Catalyst stack from the rear.

**Figure 113 Catalyst 3000 Switch Front Panel**

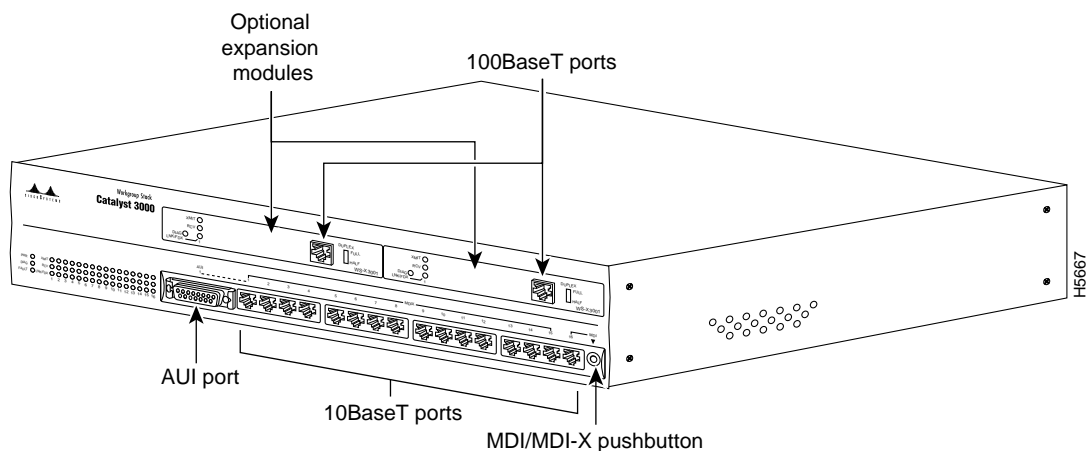


Figure 114 Catalyst 3000 Switch Rear Panel

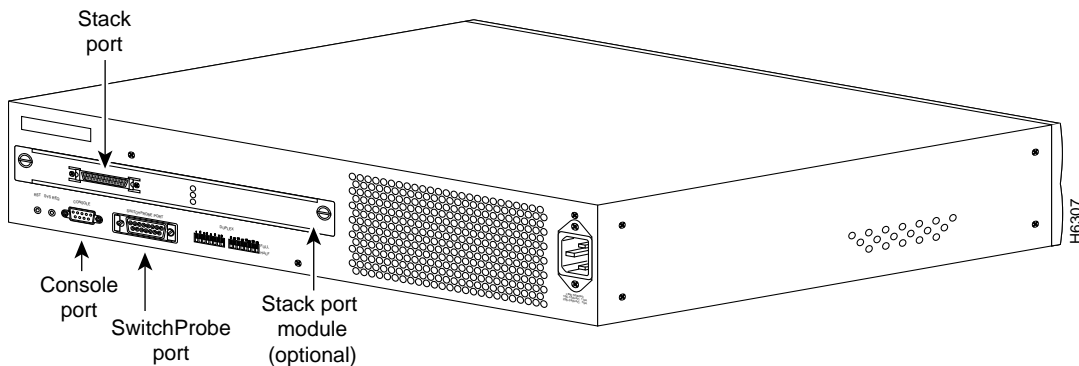


Figure 115 Catalyst Matrix Front Panel

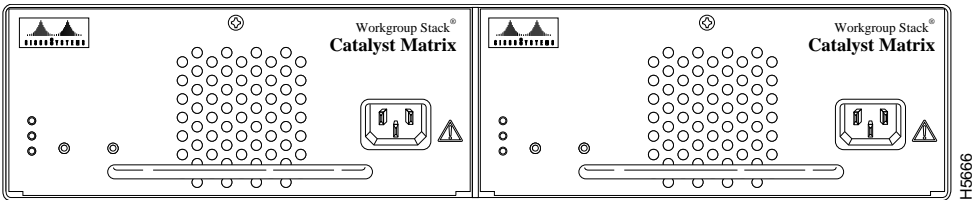


Figure 116 Catalyst Matrix Rear Panel

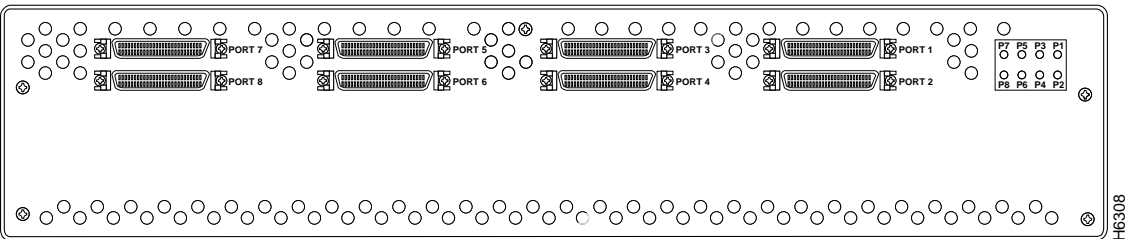


Figure 117 Catalyst 3000 Stack Front Panels

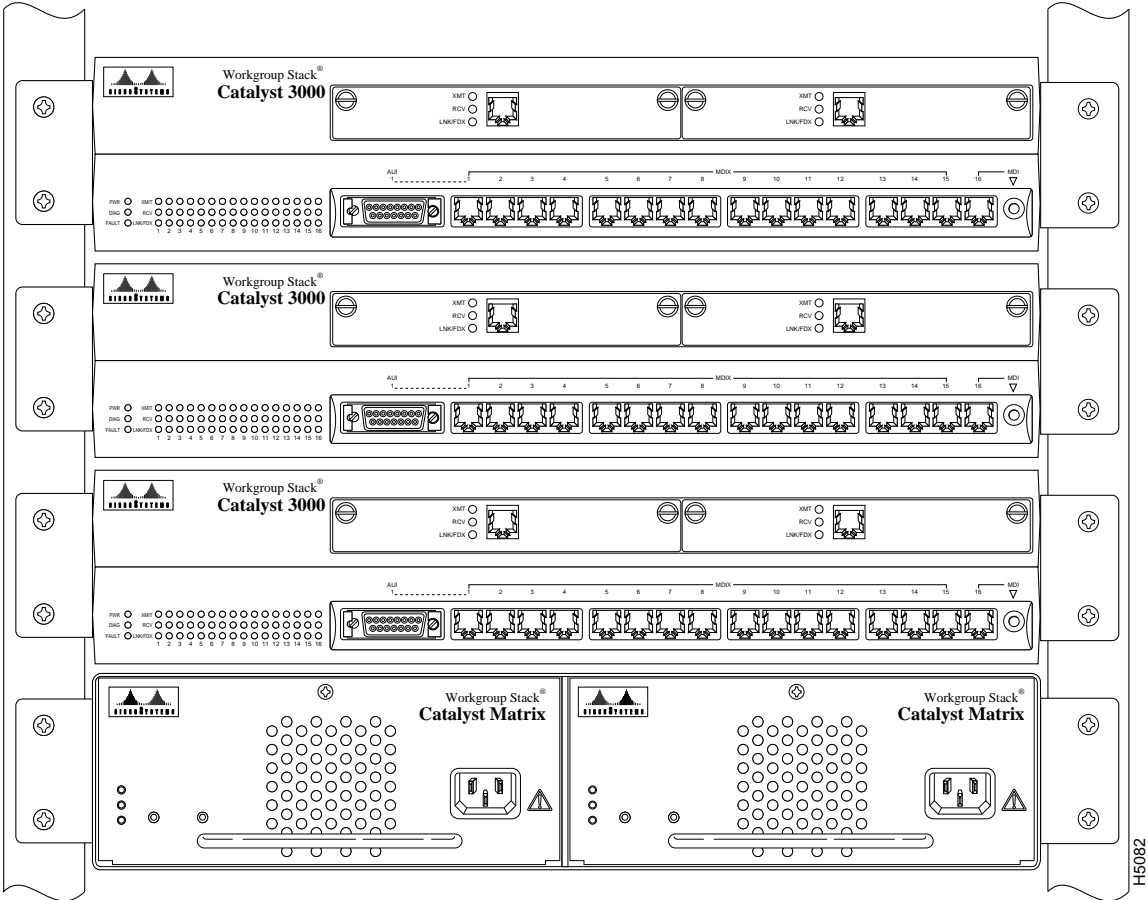
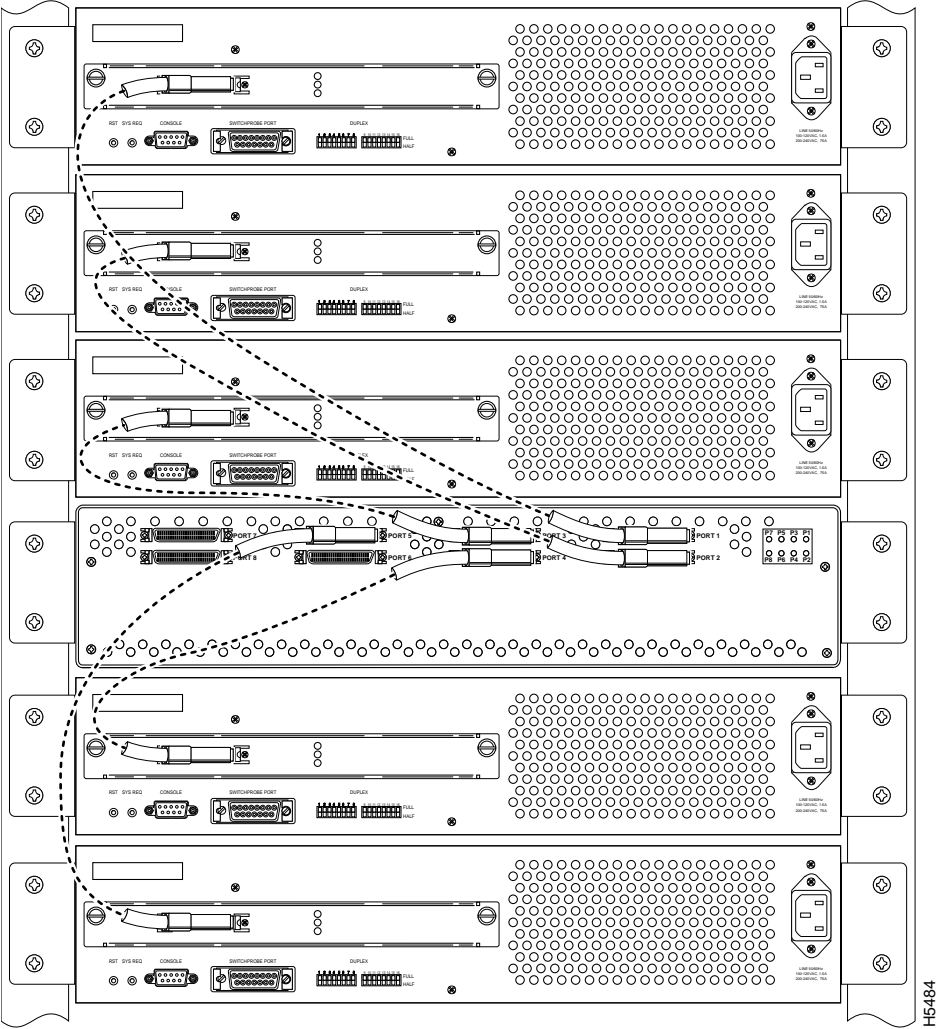


Figure 118 Catalyst 3000 Stack Rear Panels with Connections



**Table 254 Catalyst 3000 System Summary of Features**

Characteristic	Description
Ports	Each 16-port switch: 16 10BaseT, RJ-45 (ports 1–15 always MDI-X, port 16 can be MDI or MDI-X) 1 AUI 1 EIA/TIA-232 console 1 AUI DB15 SwitchProbe Stack port module (optional) 1 SCSI-2 Expansion modules (optional) Varies with module type Catalyst Matrix: 8 SCSI-2 ports for connecting the 16-port switch to the Matrix
Controls	Each 16-port switch: MDI/MDI-X pushbutton (for port 16) Catalyst Matrix Switch ID pushbutton Activate pushbutton Duplex DIP switches (for ports 1–16) Expansion module (optional): Duplex slide switch
Front panel indicators	16-port switch: Each port: transmit, receive, link/half duplex/full duplex System power Diagnostic Fault Catalyst Matrix: Ready Power Unit active Expansion modules: Varies with module type
Rear panel indicators	Each 16-port switch: Reset System request Stack Port module: Ready Power Active Catalyst Matrix: Link (port 1 to port 8)
Mounting	19-inch rack-mount
Expansion module	1-port 100BaseTX, 3-port 10BaseFL, 1-port 100BaseFX, 4-port 10BaseT, 1-port ATM (future), and 1-port 100Base VG-AnyLAN (future)
Buffers	192 KB per 10-Mbps port 256 KB per 100-Mbps port
Addresses	1,700 addresses per port, 6,000 per system Optional 10,000 addresses per system
Software updates	Flash PROM
Protocol compatibility	Transparent to higher level protocols
Network management	SNMP MIB II, bridge MIB

Dimensions (H x W x D)	Catalyst 3000 switch: 3.5 x 17 x 13.4" (8.76 x 43 x 34 cm) Catalyst Matrix: 3.5 x 17 x 13.4" (8.75 x 43 x 34 cm)
Weight	Catalyst 3000 switch: 17 pounds (7.7 kg) Catalyst Matrix: 14 pounds (6.35 kg)
Safety	UL1950, UL-C, EN 60950

**Table 255 Catalyst 3000 System Environmental Specifications**

Description	Specification
Input	90 to 264 VAC autoranging
Frequency	47 to 63 Hz
AC current rating	16-port switch: 1.5A @ 120V;.75A @ 220V Catalyst Matrix: 1.0A @ 120V;.5A @ 220V
Operating temperature range	50 to 104 F (10 to 40 C)
Storage temperature	-25 to 75 C
Operating humidity	8 to 80% noncondensing
Storage altitude	40,000'
Emissions	FCC Class A (Part 15), EN55022 A, VCCI Class 1, CE Mark



## Standard Features

The 16-port Catalyst 3000 switch supports sixteen 10BaseT ports that can be individually configured for full-duplex Ethernet. Two 16-port switches can be connected together by installing the 280-Mbps stack port module at the rear panel. Interconnecting two 16-port switches with a cable provides connectivity for thirty-two 10BaseT ports. Using the Catalyst Matrix, you can interconnect up to eight 16-port switches.

The Catalyst 3000 system provides the following features:

- Workgroup Stack Cisco IOS software provides “plug-and-play” expansion of switching capacity. Stacked switch platforms interact and are manageable as if they were a single logical entity. The switches automatically reconfigure themselves as 3000s are added or removed.
- Adaptive cut-through switching technology that delivers wire-speed, low-latency switching for 16 to 24 Ethernet segments.
- Two optional modules that provide additional interfaces for up to eight switched Ethernet ports or two ports of Fast Ethernet, VG, or ATM. These user-installable options provide flexibility for changing or growing switching applications.

- Extensive packet buffering and address filtering database supporting 192 KB of per-port buffering and 10,000 end-user stations connected to the switch; ensures reliable delivery of network traffic in switched desktop and hub applications.
- User-definable per-port and secure-mode filtering that provide access control for sensitive information resources.
- Support for up to 64 VLANs internally or across switches using Cisco's LAN emulation (LANE)-based ATM (available 3Q 1996) and Inter-Switch Link (ISL, available 4Q 1996)-based Fast Ethernet VLANs. VLANs help to facilitate moves, adds, and changes in workgroup environments.
- IEEE 802.1d spanning-tree bridging per VLAN for loop detection and support of fault-tolerant switching applications.
- Optional Stack Port interface module that connects the switch to another Catalyst 3000 switch or to the Catalyst Matrix. Delivers 280 Mbps of bandwidth ensuring unrestricted traffic flow.
- Redundant option: the standard chassis supports one crosspoint matrix module, with a slot, or bay, to add a second redundant module. Each module is a self-contained unit with complete logic and power supply. In the redundant configuration, if the primary module fails, the secondary module detects the failure and resumes operation within two to three seconds.

## Expansion Modules

The Catalyst 3000 switch supports up to two expansion modules at one time. The switch supports any mixture of the following modules:

- One-port 100BaseTX
- Three-port 10BaseFL
- One-port 100BaseFX
- Four-port 10BaseT
- One-port ATM (future)

## Product Numbers

The Catalyst 3000 switch is available in a standard or enhanced version. The standard version includes SNMP, Spanning-Tree Protocol, and address filtering. The enhanced version adds full-duplex Ethernet, EtherChannel, and VLAN support. The Catalyst Matrix is available in the nonredundant version with the option to order a redundant switch module. Table 256 lists system product numbers.



**Table 256 Catalyst 3000 Product Numbers**

<b>Description</b>	<b>Product Number</b>
16-port Catalyst 3000 switch with 6-K addresses, SNMP, address filter, Spanning-Tree Protocol	WS-C3016
16-port Catalyst 3000 switch with 6-K addresses, SNMP, address filter, Spanning-Tree Protocol plus VLAN support, full-duplex, EtherChannel	WS-C3016A
16-port Catalyst 3000 switch with 10-K addresses, SNMP, address filter, Spanning-Tree Protocol plus VLAN support, full-duplex, EtherChannel	WS-C3016B
Catalyst Matrix, nonredundant configuration	WS-C3020
Catalyst Matrix, redundant module	WS-X3021
Catalyst Matrix, redundant module (spare)	WS-X3021=
1-port 100BaseTX interface module, RJ-45 connector	WS-X3001
1-port 100BaseTX interface module (spare), RJ-45 connector	WS-X3001=
4-port 10BaseT interface module, RJ-45 connector	WS-X3002
4-port 10BaseT interface module (spare), RJ-45 connector	WS-X3002=
3-port 10BaseF interface module, ST connector	WS-X3003
3-port 10BaseF interface module (spare), ST connector	WS-X3003=
1-port 100BaseF interface module, ST connector	WS-X3005
1-port 100BaseF interface module (spare), ST connector	WS-X3005=
Catalyst 3000 Stack Port module <sup>1</sup>	WS-X3004
Catalyst 3000 Stack Port module (spare)	WS-X3004=
Upgrade from WS-C3016 to WS-C3016A (enables enhanced software services: VLAN support, full duplex, EtherChannel)	WS-C3017
Catalyst 3000 SMARTnet maintenance	CON-SNT-WS-C3001
Documentation	See the chapter "Documentation"

1. Includes cable for stack port.

